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Name of Contractor

MONTHLY CONTRACT STATUS REPORT NO.

For Period 1 August 1971 to 31 August 1971 Date: 10 September 1971

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Contract No. Task No. _____ Project No. _____

Period of Contract 26 April 1971 to 30 May 1972

Amount of Contract :

Amount of Obligations
and/or Expenditures This Period:

Amount of Obligations
and/or Expenditures to Date :

Estimate of Funds to Complete :

Percentage of Funds Expended to date 28.6%

Percentage of Work Completed to date 29%

(Note: All amounts shown must include overhead, G&A; handling charges, fees, etc.)

1. Is work on schedule? Yes (Attach sheets if necessary)
2. Can the Contract be completed in the authorized time? Yes
3. Can the Contract be completed with the authorized funds? Yes

Comments: (Attach sheets if necessary)

SEE ATTACHMENT #1

Technical Progress in Period: (Attach sheets if necessary)

SEE ATTACHMENT #1

Objective for the Next Period: (Attach sheets if necessary)

SEE ATTACHMENT #1

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Submitted by

MONTHLY TECHNICAL PROGRESS REPORT #5 - ATTACHMENT #1

The Preliminary Design Review was held on 22 and 23 September 1971 at the contractor's facility. The Preliminary Design Review Briefing Package presented at that time is included in this report as attachment #2.

A mock-up of the HILS utilizing the tungsten-halide lamp was demonstrated in the GFE MLT-1540. It was an optically complete HILS, with motor-driven iris dimming control, placed in proper relationship to the background lamps beneath one of the viewing surfaces, allowing direct comparison between the HILS and the standard viewing surface on the other side of the MLT. This mock-up did not include the motion or tracking systems.

The design approach utilizing the ELH lamp, as presented and recommended in the Briefing Package, was accepted by the customer with two points being raised: the possibility of reducing the shadowing of the background illumination by the HILS assembly with a slightly smaller configuration utilized in the final design; the proposed maximum HILS motion speed of 1"/sec. to be raised to 5"/sec. as a design goal.

A demonstration for obtaining higher light levels was presented; techniques included removing the color correcting filter, changing the spot size, and changing the diffuser (see attachment #2 for details). Light levels in excess of 200,000 foot lamberts were shown.

Technical Progress for the Period Included:

- . Completion of Study Phase of program
- . Completion of the HILS mock-up assembly
- . Completion of temperature and cooling tests
- . Basic design for the final HILS assembly completed and optical components defined

Drawing of outboard Xenon Arc optical collimator was prepared and submitted to vendors for feasibility and quotation.

Viewing

Visual check of field uniformity through the microscope was made and found that 25% variation was not discernible. To achieve 20% there would be less brightness efficiency (more heat per foot lambert) as well as 15 to 20% less luminance.

Filling of maximum numerical aperture (.206) was calculated from polar measurements of high intensity spot and found effective. Resolution measurements were made to verify that full numerical aperture capability of system was achieved. 576 lp/mm were observed very well (2/1 pattern of USAF high contrast target pattern) - the next higher pattern could be read in one direction.

Background lighting on viewing surface was measured for fall-off using mirror deflector which was found to be a suitable means for equalizing the lighting.

Other

Data summary for the forthcoming preliminary design review was initiated.

Objectives for Next Period

1. Mock-up of ELH configuration will be assembled for heat transfer and system cooling examination.
2. Heat analysis will be made on the established ELH configuration.
3. Spectroradiometric reference data will be verified against data for the reference lamp.
4. Mechanical drive configuration shall be continued.
5. Contractual Preliminary Design Review will be held at contractor's facility.

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MONTHLY TECHNICAL PROGRESS REPORT # 14 - ATTACHMENT # 1

Progress for this Period

Work was suspended in May pending direction from the customer.

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[] understands the proposed modification has been rejected, but has received no official notification. Funding of the estimated

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[] over run and authorization to proceed with the program has not been received.

Objectives for the next Period

Based upon authorization to proceed by July 14, 1972, the Pre Acceptance Test Procedure is scheduled for the week of 24 July. The manual draft will also be completed by this date.

Financial

No costs incurred during the month of June.